CLEAN VERSION FOR ENTRY IN APPLICATION

In the Specification:

The first embodiment of the new sensors teaches a compensation technique for dynamic sensors in which sensor sensitivity is of primary importance. The essence of this technique is the optimization of the various sensor components' thermal expansions and dimensions. With such optimization, the fiber tip-to-diaphragm distance change due to temperature change compensates for the increase in diaphragm deflection with temperature change. FIGS. 1 and 2 schematically illustrate two possible sensor head designs. In FIG. 1 the ferrule 10 and housing 12 are bonded together 14 adjacent the fiber tip 16 near the diaphragm 18. In FIG. 2 the ferrule 20 and housing 22 are bonded together 24 at the base remote from the fiber tip 26 and diaphragm 28. The sensor fiber 30, diaphragm 18, 28, ferrule 10, 20, bonding compound 14, 24 and housing 12, 22 are made of a combination of materials having different thermal expansion coefficients.

In the Claims:

1. A fiber-optic diaphragm sensor comprising a diaphragm, a housing affixed to the diaphragm, a ferrule bonded to the housing with a bonding compound and an optical fiber within the ferrule, the optical fiber having a tip spaced from the diaphragm,

the improvement comprising a selection of fiber material, diaphragm material, housing material, ferrule material and bonding compound material having at least some differing thermal expansion coefficients thereamong the materials whereby the optical fiber tip

to diaphragm distance changes to compensate for any temperature change induced changes in sensor sensitivity and offset dependence.